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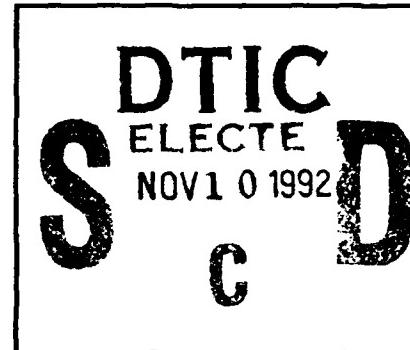
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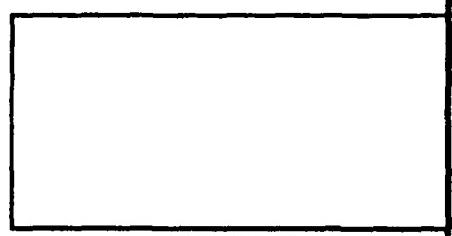
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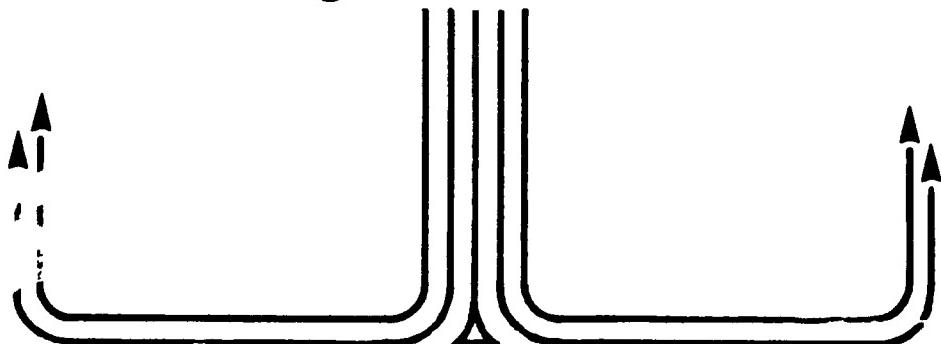
STUDENT REPORT

AIR INTERDICTION'S TARGETING PRIORITIES

MAJOR RICHARD H. McDOW

85-1805

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PREFACE

So often when we in tactical aviation think about countering a Soviet invasion, our thoughts are on defeating the air defense artillery, eliminating the command and control vehicles, and engaging the armor. There is no doubt that dodging bullets and killing tanks are going to be very important--if not essential. But there are other targets out there; support vehicles with little protective armor. This is a look into the logistics system that supports such an operation to search for what I feel is its greatest vulnerability.

ABOUT THE AUTHOR

Major Richard H. McDow entered the Air Force after graduating from the University of Alabama in 1970 with a B.S. degree in marketing. Major McDow's tactical background includes over 2000 flying hours in the F-4 and the A-10. His operational experience includes a combat tour with the 366 TFW at Danang AB, RVN, two tours in USAFE (one in the F-4; the other in the A-10), and TAC experience at Myrtle Beach AFB, SC. He is a graduate of the USAF Fighter Weapons Instructor Course and has completed Air Command and Staff College in residence.

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EXECUTIVE SUMMARY

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REPORT NUMBER 85-1805

AUTHOR(S) MAJOR RICHARD H. McDOW

TITLE AIR INTERDICTION'S TARGETING PRIORITIES

I. Purpose: To examine the Soviet logistics support system for a massed armor attack to identify its greatest weakness.

II. Findings: A Soviet front armor attack will involve as many as 13,000 vehicles. Sixty per cent of these will be support vehicles. A Soviet front will start the invasion with a ninety day supply of war fighting material; however, divisions will only have a three to five day supply. Material must be brought forward and the primary mover will be the truck for all categories of supplies except for petroleum, oil, and lubricants (POL). POL movement must be predominantly by tactical pipeline because the Soviets do not have a sufficient number of fuel trucks to support a fast moving invasion force. If they lose their pipelines, the attack must slow down.

III. Conclusions: POL movement facilities (both the pipelines and the trucks) are valid interdiction targets.

Chapter One

AIR INTERDICTION'S TARGETING PRIORITIES

Blunting a massed armor attack by a Soviet Tank Army will be an extremely difficult task. There are numerous options that the Soviets could employ, and different tactical situations could cause many variations of each of those options. But there is general agreement on one thing--when they come, it will be in large numbers and at high speed. (8:1-6)

The purpose of this paper is to examine what effect an air interdiction campaign directed against the Soviet's logistical support system would have on such an attack. This examination will look at the composition of the force, estimate its relative positioning, and determine its vulnerability to air attack. The assumed worst case of a Soviet breakthrough in Central Europe will be used. This paper will show that significant disruptive results can be achieved via attacks on the more numerous and vulnerable support vehicles.

Chapter Two

FORCE COMPOSITION

The Soviet Army elements that are being used in this scenario are two tank divisions, an independant tank regiment, an army artillery brigade, a regiment of front artillery, a front supply base section (FSBS), and other small miscellaneous units. The total number of vehicles represented is approximately 13,000, and they will generally occupy an area that is 20 km wide and extends from about 5 km to 200 km behind the FEBA. (2:130,160;4:2-4)

More specifically, the units and their relative positioning are as follows: (4:90)

<u>Unit Category</u>	<u>Proximity to FEBA</u>
Front Organizations	
FSBS	120-160 KM
Front Artillery Regiment	
Gun/Howitzer Battalions	5-10
Regimental HQ and Service	10-15
Army Organizations	
Army HQ and Combat Support	30-60
Army Supply Base	60-100
Army Artillery Brigade	
Gun/Howitzer Battalions	5-10
Regimental HQ and Service	10-15
Independent Tank Regiment	
Regimental HQ	8-12
Combat Support	8-12
Rear Services	12-15
Uncommitted Maneuver Battalions	6-10
Divisions in the First Echelon	
Division HQ and Combat Support	10-15
Division Rear Services	25-35
Division Artillery Regiment	
Regimental HQ and Service	10-15
FRLG Battalion	20-35
Howitzer/MRL Battalions	5-10
First Echelon Regiments	
Regimental HQ	8-12
Combat Support	8-12
Rear Services	12-15
Uncommitted Maneuver Battalions	6-10

According to standard Soviet practice, we can expect that during a breakthrough that the 13,000 vehicles would be moving as approximately 175 march units. The size of the individual units would vary but are generally no larger than 100 vehicles. Normally tracked and wheeled vehicles are in separate groupings to facilitate rapid movements. (4:98-102) The units will stay on the roads/hard surfaces as much as possible and travel via a "station-keeping" process. This "station-keeping" is the periodic stopping and dispersal of the individual units so that they can either provide firepower support (air defense or artillery) or just wait until slower movers have advanced. Basically, this procedure accommodates different rates of travel, prevents one continuous long string of targets, and provides continuous firepower support. Normally, one-third to one-half of the vehicles will be stopped at any one time. The normal rates of road travel are (day/night) 24/16 kph for tracked vehicles and 36/18 kph for wheeled vehicles. Spacing between vehicles on the move is 100 meters in the daytime and 50 meters at night. (5:5-2 - 5-3)

The types of vehicles can be broadly categorized as either combat or support vehicles. Combat vehicles include tanks, armored personnel carriers (APCs), air defense artillery (ADA), and artillery. Support vehicles are almost exclusively trucks--primarily POL and ammunition supply vehicles. The normal ratio is approximately 60:40 (support to combat vehicles). (7:5-15 - 5-44)

Chapter Three

SOVIET LOGISTICAL CONCEPTS

Because of differences in concepts and operating conditions, the Soviet rear services were generally regarded as a weak link in their army. But this is no longer the case. They have incorporated modern concepts such as the use of pallets, containers, tactical pipelines, and improved transportation procedures. (6:13-1) The Soviet rear services have established their own logistical principles which support the goals of the army. (9:1-6) These are as follows:

1. Mobility.
2. Advanced Creation and Echeloned Emplacement of Reserves.
3. Delivery Forward Concept.
4. Centralized Planning with a Firm Adherence to Priorities of Resupply.
5. Standardization of Equipment and Munitions.
6. Utilization of All Forms of Transportation and Utilization of Captured Stock.

The use of these principles has provided the framework for an effective logistical support system.

Mobility is a basic requirement of Soviet doctrine. The mission of every Soviet unit is to successfully conduct combat operations. The logistical tail is expected to be able to keep up with and follow the unit no matter where it goes. Below the front level, units normally maintain a 3 to 5-day supply of ammunition, fuel, and rations. (9:1;6:13-2)

The Advanced Creation and Echeloned Emplacement of Reserves calls for the movement of war supplies forward so that they are immediately available when hostilities begin. Soviet principles call for this to be done on a gradual basis during peacetime so that last minute war preparations are not so evident. Their desired level of forward storage would support operations for a 90-day period. (9:2)

To further support the fast paced battlefield, the Soviets operate under a Delivery Forward Concept. Essentially, this means that the Front and Army levels have the responsibility of providing the supplies that are requested. From the division level on down, the rear services organizations have only to supply their own organic

needs. They do not have the responsibility of transporting the supplies forward from the army and front depots. The fighting units are kept relatively small because the bulk of the transportation resources are located at the higher levels. (9:3;6:13-1)

Centralized Planning with a Firm Adherence to Priorities of Resupply is one of the strong points of the Soviet logistics system. Centralized control and rigid adherence to the predetermined priority list is apparent down through the company level. Their priorities for resupply are as follows:

1. Ammunition.
2. Petroleum, Oil, and Lubricants (POL).
3. Technical Supplies.
4. Rations and clothing.

It is quite obvious that the Soviets place their highest priorities on their war fighting capabilities. (9:3;6:13-1)

Generally, the Warsaw Pact has a high degree of Standardization of Equipment and Munitions because the Soviet Union is the principal supplier of weapons for that community. The Soviet practice of updating designs rather than introducing completely new systems has simplified stockage of spare parts and maintenance procedures. This commonality does provide the field commander a greater degree of flexibility than he would have otherwise. The non-Soviet members of the Warsaw Pact have shown some resistance recently to purchasing some of the newer high-technology equipment due to the higher costs. As of yet, though, this has not posed a significant threat to the standardization theme. (9:4;6:13-1)

The last Soviet principle of logistic support is the Utilization of All Forms of Transportation and Utilization of Captured Stock. They learned from their World War II experience that a large scale war would require the mobilization of the civilian transportation system. This mobilization will be facilitated because many of the civilian vehicles are the same as those that are organic to the Soviet Army. This commonality will allow absorption of the civilian vehicles with minimum impact on the logistics or maintenance system. The Soviets are also prepared to make maximum usage of captured material and equipment. While they are careful not to make their supply system depend on captured stocks to be successful, they do regard such spoils as a bonus. (9:5;6:13-2)

The Soviet logistics system has been designed around principles that support the tactical goals of the Soviet Army.

Chapter Four

LOGISTICAL EXECUTION AND REQUIREMENTS

The Soviet army logistical execution can be summarized in two phases. First is the establishment of dispersed material reserves. Second is creation of a responsive distribution system.

The nature of the initial phase of modern war requires that the material means required for conducting the first operations not only be prepared in peacetime, but dispersed, taking into account the requirements of anti-atomic defense. (9:13)

The Soviets have four categories of reserve materials. There are emergency reserves that are kept directly with the combat units. The mobilization reserves are kept usually at the army or front level. Both of these groups of reserves, according to Soviet doctrine, have the capability to replenish the tremendous losses that are expected during a nuclear conflict for a period of 90 days. The last two categories of reserves are strategic and state reserves that are stored in the Soviet Union. (6:13-4; 9:14)

Each military unit maintains depots for the storage and distribution of supplies. The front level depot will normally be 200 to 250 km from the FEBA. The army level depot will normally be about 100 km from the FEBA. Division and regimental supply points are usually about 30 and 15 km from the FEBA respectively. Supplies are normally packaged in bulk and kept on trucks as much as possible to facilitate rapid movement forward. (6:13-4; 9:14)

Most of the transport from the front toward the FEBA is via truck. The Soviets have a number of heavy lift vehicles that are all-wheel drive and can operate quite well off of prepared roads. Each front organization has a lift capacity of 34,000 tons. The Soviets have demonstrated a capability for airlift resupply (both fixed wing and helicopter) but have not used this method from the front to the FEBA. (6:13-7, 13-14; 9:15-16)

Ammunition resupply has the highest priority. Commanders submit a status report every 12 hours and they are replenished based on usage and what is available at the depots. (6:13-1;9:16)

Fuel has the second priority for shipment to the battle area. (6:13-1) Fuel shipments from the front forward are normally accomplished in one of two ways--either via a tactical pipeline or by truck. For a front to sustain an offensive operation, it must have an operable pipeline to within 25 to 50 km of the FEBA. Fuel usage during an offensive runs about 20 million liters per day for the front. The pipeline can deliver 80,000 liters per hour. If the pipeline were not available and this amount of fuel had to be delivered by truck over a distance of 300 km, it would take 10,000 5-ton trucks. (9:17-19)

The Soviet distribution system is not perfect. The drivers that they use depend quite a bit on road guides. Maps are not generally issued to everyone in the Soviet Army. This could create some confusing situations that delay materials reaching the depots. Also, the tactical pipelines are fairly inflexible once they are laid and there is no completely effective backup for fuel distribution if they are lost. (6:13-14;9:13)

In actual practice, the Soviets have developed an effective logistical system that is tailored to the type of war that they intend to fight. It is admirable, but it is not without its vulnerabilities.

Chapter Five

TARGETING EFFECTIVENESS

Before proceeding, here is a brief summary of the points made so far.

1. A Soviet front armor attack will be massive. The estimates of the number of vehicles involved can legitimately range up to 13,000. Approximately 60 per cent (7,800) of these will be thin-skinned supply vehicles.
2. The Soviets intend to have a 90-day supply of war fighting materials available at the front and army levels. Divisions, and smaller units, will have approximately a 3 to 5-day supply.
3. From the Warsaw Pact borders to the FEBA, the primary instrument for the movement of supplies will be the truck. POL will be transported as much as possible by tactical pipelines because there are not enough fuel trucks to move the total required. The Soviets have also begun investigating, on a limited scale, the use of helicopters for the transport of supplies.

The most critical specific area to interdict against the Soviets would be that of POL delivery. While it would be unrealistic to attempt to destroy every fuel truck and cut every pipeline, we must recognize that this is their most vulnerable area. They simply do not have sufficient numbers of fuel trucks available to take up the slack if the tactical pipelines are shut down. Because of their thin skin and volatile cargo, these targets are vulnerable to just about every weapon system that we have. (9:17-19)

At first glance, it would not appear that a successful conventional interdiction campaign could be conducted against such a large number of small targets that are bound to be difficult to find. History indicates, however, that total destruction of the supply network is not necessary to achieve positive results. Operation Strangle was an independent air operation conducted against the Germans in central Italy during 1944. Its objective was to force the Germans to withdraw by denying them essential supplies. (3:v)

Operation Strangle did not achieve its objective of supply denial. It did, however, achieve mobility denial because many of the targets selected for the tactical aircraft included bridges, railways, and road traffic. The reduction and occasional paralysis of the enemy's freedom of movement made it very difficult for the field commanders to shift their forces and supplies. This loss of tactical mobility for the Germans was a critical blow.(3:v) This same secondary benefit should also be apparent when interdicting the Soviet supply system.

Chapter Six

SUMMARY AND CONCLUSIONS

A massed Soviet armor attack will be composed of a tremendous number of vehicles. The majority of these will be thin-skinned vehicles from support units of the Soviet rear services. These vehicles are more vulnerable to a wider range of our weapons than are the more heavily protected combat vehicles. (2:Ch4;7:5-161 - 5-170)

Historically, it is difficult to find valid examples of tactical airpower being able to successfully shut off a ground army's supply lines and force him to terminate his offensive. However, a valuable lesson to learn from Operation Strangle in World War II is that mobility denial is an attainable goal that yields positive results. (3:vi)

The Soviet rear services are very well organized and quite capable of providing the fast paced logistical support that the tactical units need. While there is no readily apparent "soft under belly," there is one area where they do not have as much redundancy as they do elsewhere. That one area is POL. The delivery of the POL is dependent on both fuel trucks and tactical pipelines. If either one can be seriously degraded, then the Soviet offensive will be forced to slow down.

An interdiction campaign directed at the Soviet supply system, with specific emphasis on POL delivery vehicles, can pay dramatic dividends. The possible collateral benefit of mobility denial is an added bonus.

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